

Statement of Work
for
Airborne Mine Countermeasures
Common Tow Cable



14 July 2011

United States Navy
Program Executive Office Littoral Combat Ships (PEO LCS)
Mine Warfare Program Office (PMS 495)
Washington Navy Yard

1	SCOPE	3
1.1	Development	3
1.2	Production	3
2	APPLICABLE DOCUMENTS	3
2.1	Department of Defense Standards	3
2.2	Department of Defense Handbooks	3
3	REQUIREMENTS.....	4
3.1	Design Approach	4
3.1.1	Common Tow Cable Improvements.....	4
3.1.2	Design and Performance Analyses	5
3.1.3	Design Documentation.....	5
3.1.4	Engineering Verification.....	7
3.1.5	Operator and Maintenance Training	7
3.1.6	Technical Reviews	7
3.1.7	Parts Control and Standardization	8
3.1.8	Environmental, Safety, and Occupational Health Requirements.....	9
3.2	Systems Engineering.....	9
3.2.1	System Safety and Safety Engineering	9
3.2.2	Quality Assurance.....	9
3.2.3	Configuration Management	9
3.2.4	Reliability and Maintainability (R&M)	10
3.3	Testing, Evaluation, and Reporting	10
3.3.1	Qualification Testing	11
3.3.2	System Verification Review	11
3.3.3	Factory Acceptance Tests	12
3.4	System Hardware.....	12
3.4.1	Engineering Development Models (EDMs)	12
3.4.2	Common Tow Cable Production	12
3.4.3	Production Engineering	12
3.5	Facilities.....	13
3.6	Program Management.....	13
3.6.1	Integrated Master Schedule.....	13
3.6.2	Contractor's Progress, Status and Management Report	13
3.6.3	Kick-Off Meeting.....	13
3.6.4	Integrated Product Teams (IPT).....	13
3.7	Data Rights.....	13
3.8	Government Furnished Property, Equipment, and Information	13

1 SCOPE

The Contractor shall design, develop, qualify, test, and produce a common tow cable for the US Navy to operate the AN/ASQ-235 Airborne Mine Neutralization System, the AN/AQS-20A Sonar Mine Detecting Set and the AN/ALQ-220 Organic Airborne and Surface Influence Sweep from the MH-60S helicopter Carriage, Stream, Tow, and Recover System (CSTRS).

1.1 Development

The Contractor shall develop a production level technical data package, deliver Common Tow Cable Engineering Development Models (EDMs) and conduct qualification tests for the Airborne Mine Countermeasures (AMCM) Common Tow Cable.

1.2 Production

The Contractor shall fabricate, test and deliver fully-qualified, full-length, Common Tow Cables.

2 APPLICABLE DOCUMENTS

The following standards and handbooks form a part of this SOW to the extent cited. All reference documents may be used for guidance unless otherwise specified within the body of this SOW. Guidance documents may be used as an aid in identifying applicable topics to be addressed consistent with meeting the requirements of the project. The Contractor is not required to use any document cited “guidance.” The Contractor should propose alternatives to the specifications and standards cited herein, if the alternatives will enhance system performance or cost effectiveness. Unless otherwise specified, the issue of Government documents are those listed in DoD Single Stock Point ASSIST database (<https://assist.daps.dla.mil/quicksearch/>) on the date of this SOW. When, in the opinion of the Contractor, a deviation from standards or requirements of this SOW is in order, the Contractor shall submit to the Administrative Contracting Officer a written request for deviation and provide an information copy to the designated technical. The Government will notify the Contractor in writing of approval or disapproval of the request for deviation within 30 days after receipt by the Administrative Contracting Officer.

2.1 Department of Defense Standards

MIL-STD-961E Ch 1	Invoked	Defense and Program-Unique Specifications Format and Content
MIL-STD-31000	Invoked	Technical Data Packages
MIL-STD-130N	Invoked	Identification Marking of U.S. Military Property
MIL-STD-882D	Guidance	Department of Defense Standard Practice for System Safety

2.2 Department of Defense Handbooks

MIL-HDBK-61	Guidance	Configuration Management Guidance
NAVSEAINST 5000.9	Guidance	Naval Systems Engineering Technical Review Handbook

3 REQUIREMENTS

3.1 Design Approach

3.1.1 Common Tow Cable Improvements

The Contractor shall design and develop a Common Tow Cable that addresses the safety, reliability and maintainability problems listed below. The Common Tow Cable shall meet or exceed the requirements of the Tow Cable Specification Drawing No. 38614 Rev. H, OAMCM Tow Cable Assembly 40906, Rev. -, and ITT Tow Cable Shielding Specification SPEC-10-000001.

3.1.1.1 Anti-strumming Design

Hard plastic airfoil-shaped fairings along the lower portion of the baseline cable are there to reduce cable strumming which interferes with the sonar performance of the AN/AQS-20A system. These fairings foul within the CSTRS during sensor recovery which leads to in-flight troubleshooting and mission delays/aborts. The Contractor shall redesign the tow cable features to minimize cable strumming while considering ease of assembly and removal, reduction in drag and acoustic noise, and improved durability. The tow cable anti-strumming design shall not reduce the reliability/availability of CSTRS or the performance of AN/AQS-20A system.

3.1.1.2 Drag Reduction

The current tow cable design incorporates features to reduce tow cable drag. Minimizing drag is important to permit towed devices to reach operational depths, maximize towing time, and reduce helicopter power train stresses. Since tow cable drag is the significant portion of overall drag during towing operations, reduced drag is desired. The Contractor shall implement design features for further drag reduction without adversely impacting total buoyancy considerations.

3.1.1.3 Sensor Rotation

Testing to date had shown that all three systems (AN/ASQ-235, AN/AQS-20A and AN/ALQ-220) rotate in the air during deployment or recovery by the helicopter induced by prevailing winds, rotor wash, and wave slap. Since the baseline OAMCM tow cable P/N 40906 does not allow the sensors to rotate independently of the tow cable, the baseline cable twists typically, three-to-four rotations however in one extreme and rare case, ten rotations were experienced. This twisting of the tow cable results in stress of fairing linkages, interference between fairings and CSTRS components, and tow cable armor strand expansion. The Contractor shall investigate and shall provide a report delineating the findings/analysis/conclusions and a proposal on the incorporation of a slip ring at the wet end tow point.

3.1.1.4 Tow Cable Twist

Investigation of the existing tow cable design as documented in Woods Hole Oceanographic Institute Failure of an Atlas Elektronik OAMCM Tow Cable: Investigations, Tests, Suggested Improvements has shown that the inner and outer layers of armor are not balanced. This can impart a rotational moment leading to rotation of any attached device and resulting in tow cable twist. Cable twist can result in the problems described above. The Contractor shall implement design features that will improve the torque balancing of the cable.

3.1.1.5 Electrical Shielding

The electrical field produced by OASIS during operation can cause harmful electrolytic corrosion in components of the towed body. Testing to date has shown that the metal content of the existing tow cable near the towed body produces harmful electrical potentials on towed body components. The Contractor shall implement design features for shielding solutions that provide the required electrical insulation as specified in ITT Tow Cable Shielding Specification SPEC-10-000001 and can appropriately interface the guillotine and mechanical working of the CSTRS.

3.1.1.6 Tool for Fairing Removal

The Contractor shall design a tool to be used to remove the airfoil-shaped plastic fairings during flight if the fairings sustain damage severe enough to prevent successful recovery of the towed body. The tool shall only employ the use of one hand to operate.

3.1.2 Design and Performance Analyses

The Contractor shall conduct functional design and performance analyses to validate that the system design meets the requirements of this SOW, the Tow Cable Specification Drawing No. 38614, Rev. G and ITT Tow Cable Shielding Specification SPEC-10-000001. Cost as An Independent Variable shall be considered in functional analysis and allocation and performance analysis to ensure the system design solution is cost effective. Detailed physical and performance design characteristics shall be specifically identified, including the system engineering decision process. Design and performance analyses shall be included in CDR documentation and presented to the Government 30 days prior to the CDR.

3.1.3 Design Documentation

Design documentation shall include discussion of alternatives, ramifications thereof, risk assessments, and trade-offs.

3.1.3.1 Technical Data Package

The Contractor shall prepare and deliver a technical data package of engineering documentation for the Common Tow Cable prepared in accordance with MIL-STD-31000, and as specified in the Technical Data Package Option Selection Worksheet. The technical documentation shall include, but not be limited to, specifications, drawings, schematics, and interface control drawings.

The technical data package shall include three (3)-dimensional models and two (2)-dimensional production level product drawings and two (2)-dimensional production level test article drawings.

The (2)-dimensional production level product and test article drawings shall be delivered in both a native file format and in Adobe Acrobat .pdf file format.

The Contractor shall maximize the use of existing applicable commercial/vendor and Government documentation. The Contractor shall notify the Government if documents are selected for use for which the cognizant design activity is the Government.

3.1.3.2 Technical Drawings

Engineering drawings shall be prepared and identified using drawing numbers provided in accordance with ASME-Y14.100 and current practices. The drawings shall be in sufficient detail to support the manufacturing of the full system, by a Contractor with depot level repair capability, without requiring

additional documentation or information. Safety critical components of the tow cable will be identified in drawings.

3.1.3.3 Product Drawings and Associated Lists

For items or components which the Contractor manufactures, alters, or modifies, the Contractor shall prepare the appropriate engineering product drawings and documentation that is adequate for procurement of spare parts, manufacturing, retrofit, installation, test, troubleshooting, inspection, qualification, and acceptance of the system and its components. Product drawings shall be delivered to the Government and shall require Government approval prior to acceptance. (A001)

3.1.3.4 Commercial Drawings and Associated Lists

The Contractor shall provide commercial drawings and technical data accompanying the purchased item in accordance with MIL-STD-31000. (A002)

3.1.3.5 Supplemental Data for Provisioning

For the commercial items of which accompanying technical data is unavailable, the Contractor shall provide supplemental data for provisioning in sufficient detail to definitively identify dimensional, materiel, mechanical, electrical, or other characteristics adequate for provisioning. (A003)

3.1.3.6 Documentation Trees

As part of the technical data package, the Contractor shall prepare and maintain a drawing tree, a specification tree, and an interface control document. Each tree shall be comprised of drawing/specification numbers and nomenclature showing an item's relationship to the next higher assembly and shall include bills of material. Documentation trees shall be made available to the Government for review during in-process and design reviews. (A004)

3.1.3.7 System Performance Specification

The Contractor shall prepare, maintain, and deliver a performance specification that defines the interface, performance, maintenance and supportability requirements in accordance with MIL-STD-961D. The system performance specification shall define how each performance requirement in the performance specification will be verified in a performance verification matrix. Specifications shall be identified with Government-furnished document numbers and Contractor and Government Entity (CAGE) code. (A005)

3.1.3.8 System/Segment Interface Control Specification

The Contractor shall prepare a System/Segment Interface Control Specification for the tow cable and deliver in support of the Critical Design Review. References to Associated Interface Control Drawings shall be included in the Interface Control Specification. (A006)

3.1.3.9 Interface Control Documents

The Contractor shall generate, maintain and deliver Interface Control Documents to the depot maintenance and shop repairable level. The Interface Control Documents shall describe and define interfaces in quantitative terms to provide a record of all interface information (such as drawings, diagrams, tables, and textual information) generated for the project. Interface Control Documents shall also describe and define external tow cable interfaces. The Interface Control Documents shall address the capability for performance upgrades. (A007)

3.1.4 Engineering Verification

The Contractor shall develop and maintain a Requirements Verification Matrix that cross references system performance requirements to the proposed verification methods and demonstrates that the performance meets or exceeds requirements defined in the System Performance Specification developed under this SOW. Verification methods identified in the Requirements Verification Matrix shall be reflected in the System Performance Specification developed as part of this SOW.

3.1.5 Operator and Maintenance Training

The Contractor shall analyze existing Operator and Maintenance training and recommend changes to the Government through the IPT process and deliver in support of the CDR and final program documentation submittal. (A004)

3.1.6 Technical Reviews

The Contractor shall provide the means for an audio or video teleconference link to reviews for Government personnel unable to travel to the designated facility.

3.1.6.1 Informal Design and Technical Interchange Meetings

Informal design and technical interchange meetings shall be conducted at times and locations agreed to by the Government and the Contractor. The Contractor shall develop draft presentations one week prior for Government review. The Contractor shall deliver the final presentation with updates at the informal design review/interchange meeting. (A004)

The Contractor shall prepare action items, to include responsible parties and due dates, and deliver no later than one week after meeting completion. The Contractor shall maintain and track action items through the IPT process until closure. (A004)

3.1.6.2 Critical Design Review (CDR)

The Contractor shall prepare for and conduct a systems engineering CDR with the IPT to review Contractor progress in the areas of design, cost, schedule, program risks and technical issues. The CDR assesses the system final design as outlined in the product specifications for each configuration item establishing a product baseline. The CDR determines whether the hardware and human detail designs are complete and the system is prepared to start fabrication, demonstration and testing. The CDR shall conform to the standards established in NAVSEAINST 5000.9, the Naval Systems Engineering Technical Review Handbook.

This CDR shall be held at the Contractor's facility. The Contractor shall also provide the means for an audio or video tele-conference link to this review for Government personnel unable to travel to the designated facility. The Contractor shall submit an agenda 10 days prior to the meeting for Government approval (A008).

3.1.6.3 CDR Presentation

The Contractor shall develop a CDR presentation and deliver a walk-through package and participate in a CDR dry run one week prior to CDR for Government review. The Contractor shall deliver a CDR presentation with updates from the dry run at CDR. The presentation shall address all of the items mentioned in the entrance criteria of this SOW. (A004)

3.1.6.4 CDR Entrance Criteria

The Contractor shall meet the following entrance criteria for CDR:

- a) Delivery of Final Proposed Specification Compliance summary, including details on how design meets every specification requirement,
- b) Delivery of Final Proposed Qualification Summary,
- c) Identification, schedule and delivery of GFE requirements (e.g. Fit Test Interface Equipment, test equipment, etc),
- d) 90% of the Product Drawings of the design completed and delivered to the Government, with 100% of all critical hardware item drawings,
- e) Identification, description and delivery of the training changes,
- f) Delivery of detailed Requirements Allocation, R&M analyses including Predictions describing how new designs overcome previous R&M issues,
- g) Delivery of Final Safety Assessment Report to support CDR design,
- h) Delivery of Final Electrical Loads Analysis to support CDR design,
- i) Delivery of any additional data identified one month prior to CDR as required by the Government to authorize advancement to hardware fabrication and qualification phase,
- j) Delivery of Critical Design Review Briefing Package,
- k) Delivery of detailed Risk Assessment and risk mitigations,
- l) Delivery of compatibility assessment showing compatibility with other aircraft systems and test equipment, and
- m) Delivery of Draft Functional Qualification Test Plan.

3.1.6.5 CDR Exit Criteria

The Contractor shall obtain the following in order to exit CDR:

- a) Government approval of the Product Drawings and analyses,
- b) Government approval of the documented design, specifications, and GFI publication changes,
- c) Assignment, path forward, priority and due dates of all open non-critical action items, and
- d) Closure of all Requests for Action (i.e. critical action items).

3.1.6.6 CDR Action Items and Minutes

The Contractor shall prepare action items, to include responsible parties and due dates, from the CDR and deliver no later than one week after CDR completion. The Contractor shall maintain and track action items through the IPT process until closure. The Contractor shall submit meeting minutes following the meeting. (A009, A004)

3.1.6.7 Production Readiness Review (PRR)

At the completion of qualification testing, the Contractor shall conduct a final PRR jointly with the Government to determine the status of satisfactory completion of all production-related actions. At a minimum, the review shall encompass such elements as production planning, facilities allocation, incorporation of producibility-oriented changes, identification and fabrication of production lines, tools, test equipment, and acquisition of long lead materials and components for any major modifications to the tow cable design.

3.1.7 Parts Control and Standardization

The Contractor shall implement an internal parts management system in accordance with the

Contractor's internal methodology. The Contractor shall notify the Government in writing upon discovery of any defective conditions in military specifications, vendor qualified parts, components, materials, or processes that may adversely affect the execution of this program. (A004)

3.1.8 Environmental, Safety, and Occupational Health Requirements

The Contractor shall verify the production of the systems complies with all applicable local, and state environmental protection laws regulations, treaties, and agreements.

3.2 Systems Engineering

The Contractor shall use a documented systems engineering process to translate system performance requirements described in this SOW; and the Tow Cable Specification Drawing No. 38614, Rev. H, OAMCM Tow Cable Assembly drawing 40906, latest Rev. and ITT Tow Cable Shielding Specification SPEC-10-000001 (provided as GFI) for the Common Tow Cable.

3.2.1 System Safety and Safety Engineering

The Contractor shall develop the tow cable such that the risk of personnel injury and equipment damage under all conditions of normal use (installation, maintenance, and operations) and under a likely fault condition including human error throughout the design service life is not increased from the Common Tow Cable. The Contractor shall design and produce the tow cable without compromising system compliance with recognized consensus safety standards (UL, NEPA, OSHA, ANSI, IEEE, etc.) applicable to the system design. The system safety process shall be used to identify hazards that could occur during the entire life cycle and shall categorize severity and frequency of the identified hazards in accordance with MIL-STD-882D.

The Contractor shall develop and implement a Safety Assessment Report using MIL-STD-882D as guidance. The Safety Assessment Report results shall be applied to the tow cable design process. The safety assessment shall identify all hardware and software safety features and inherent hazards, and shall establish special procedures and/or precautions to be observed by the test agencies and tow cable users. As appendices to the Safety Assessment Report, the Contractor should identify and incorporate safety and health hazards associated with the system. This should include at a minimum a System Hazard Analysis, and Health Hazard Assessment. The Contractor shall prepare a Safety Assessment Report and deliver one week prior to CDR. (A010)

3.2.2 Quality Assurance

The Contractor shall implement and enforce a quality system that satisfies the program objectives of ANSI/ASQ-Q9001 throughout the duration of the contract. The Contractor shall make available all quality system documentation upon request.

3.2.3 Configuration Management

The Government will control and maintain the product baseline, which is the baseline established at the Critical Design Review (CDR). After Government acceptance of the Contractor-generated specifications, drawings and interface control documents developed under this contract, these documents will become part of the product baseline. Engineering changes and deviations to configuration items submitted to PMS495 shall be limited to those which offer significant benefit to the Government as defined in ANSI/EIA-649A.

The Contractor shall maintain a configuration program in accordance with the Contractor's configuration management plan conforming to industry best practices of ANSI/EIA-649A.

3.2.3.1 Product Identification and Marking

The Contractor shall document the identification and marking of all items in the drawings produced this SOW in accordance with MIL-STD-130. The Contractor shall identify and mark all items delivered under this contract including parts, assemblies, units, and sets in accordance with MIL-STD-130.

3.2.4 Reliability and Maintainability (R&M)

3.2.4.1 Reliability Program

The Contractor shall implement and maintain a reliability program that ensures the Mean Time Between Failure (MTBF) requirement for each AMCM platform, as specified the MH-60S AMCM System Specification (draft), Revision F, dated 14 Dec 07.

3.2.4.2 Reliability Analysis

The Contractor shall deliver a final reliability analysis at the end of qualification testing. (A004)

3.2.4.3 Maintenance and Repair Analysis

The Contractor shall develop and provide maintenance and repair analysis with special attention given to fairing assemblies. Data and analysis shall include: name of part, part failure rate, diagnostic capabilities, unscheduled/scheduled maintenance task times, Mean Time to Repair (MTTR), unscheduled/scheduled maintenance tasks, MTBF, description of maintenance tasks, and level of maintenance to perform the repair (i.e., unit, intermediate or depot). The Contractor shall develop diagnostic, preventative maintenance and repair procedures and identify repair parts and special tools required to perform tasks. The maintenance procedures for the baseline tow cable (OAMCM Tow Cable Assembly Organizational Level Maintenance Manual, Technical Manual AE-317SA-MOB-000) are provided for guidance in developing the maintenance concept. The delivery of the data item shall include all spreadsheets and project files from which the predictions were developed. (A004)

3.3 Testing, Evaluation, and Reporting

The Contractor shall perform qualification testing to prove the design satisfies all requirements of the Government-accepted Contractor-developed system performance specification.

The Government shall have access and an opportunity to witness all tests, failure analyses and hardware modifications performed under this contract.

The Government will provide access to interfacing AMCM systems as needed during the course of this effort:

- AN/ASQ-235 Airborne Mine Neutralization System
- AN/AQS-20A Sonar Mine Detecting Set
- AN/ALQ-220 Organic Airborne and Surface Influence Sweep
- MH-60S Helicopter CSTRS

As determined by the testing requirements, the Government will make available certain specialized test facilities upon request such as the:

- CSTRS tower facility in Johnstown, PA,
- Naval Research Lab Center for Corrosion Science and Engineering in Washington, DC, and the
- Guillotine firing laboratories in Indian Head, MD.

3.3.1 Qualification Testing

The Contractor shall demonstrate system performance prior to Government acceptance testing through qualification testing. Qualification Testing shall demonstrate specification operational requirements. The qualification test program shall include pre-test inspection to determine baseline condition and post-test inspection to determine test impact on system. The Contractor shall be responsible for planning, conduct and reporting of the tests.

Qualification Testing shall include all testing described in the Government-approved system performance specification developed under this contract. The qualification testing shall include:

- a) All testing listed in the Tow Cable Specification Drawing No. 38614, Rev. H
- b) The test detailed in the ITT Tow Cable Shielding Specification SPEC-10-000001
- c) A CSTRS mechanical interoperability and durability test at the CSTRS tower facility in Johnstown, PA to demonstrate the deployment and recovery tow cable with a free-spinning representative mass. The CSTRS tower will be set to a series of pitch, roll and yaw positions to simulate MH-60S helicopter orientations.
- d) A CSTRS guillotine test at the guillotine firing laboratory in Indian Head, MD to demonstrate the effectiveness of the CSTRS guillotine across every type of tow cable section between the dry-end CSTRS termination and the wet end tow staff. A minimum of 29 successful demonstrations of each tow cable section, of length greater than 0.100 inches, shall be required.

3.3.1.1 Qualification Test Articles

The Contractor shall construct production-representative test articles in accordance with the technical data package for use in qualifying the design. Multiple cables of varying length may be required to support qualification testing called out in the system performance specification developed under this SOW. The Contractor is not required to use the test cable or the test set cable described in the Tow Cable Specification Drawing No. 38614, Rev. G.

3.3.1.2 Qualification Test Report

The Contractor shall document and present the results of testing in a qualification test report including pre and post test inspections to the Government in support of the System Verification Review. (A011)

3.3.2 System Verification Review

The Contractor shall conduct a System Verification Review (SVR) at the Contractor's facility not sooner than ten (10) days after transmittal of entrance criteria documentation. The SVR shall conform to the standards established in NAVSEAINST 5000.9, the Naval Systems Engineering Technical Review Handbook. The Contractor shall submit an agenda prior to the meeting. (A008).

3.3.2.1 System Verification Review Entrance Criteria

Design of the common tow cable shall be complete and production representative prototype test articles shall be fabricated and tested to assure that the requirements of the Contractor performance

specification, developed under this SOW, are achieved. Completed performance verification matrices are required that document the ability of the system hardware to meet Contractor development and product level system specifications. For those requirements that cannot be tested by the Contractor, an analysis is required to justify compliance with specification requirements. Test reports, demonstration results, analysis and inspections that substantiate these verification matrices for the system shall be made available at the Contractor facility for Government review.

3.3.2.2 System Verification Review Presentation

The Contractor shall develop a SVR presentation and deliver a walk-through package and participate in a SVR dry run one week prior to SVR for Government review. The Contractor shall deliver a SVR presentation with updates from the dry run at SVR. The presentation shall address all of the items mentioned in the CDR entrance criteria. (A004)

3.3.2.3 System Verification Review Action Items and Minutes

The Contractor shall prepare action items, to include responsible parties and due dates, from the SVR and deliver no later than one week after SVR completion. The Contractor shall maintain and track action items through the IPT process until closure. The Contractor shall submit meeting minutes five (5) days following the meeting for Government approval. (A009, A004)

3.3.2.4 System Verification Review Exit Criteria

Exit criteria shall be Government approval of SVR documentation and closure of all Requests for Action (i.e. critical action items).

3.3.3 Factory Acceptance Tests

Factory Acceptance Testing shall be the responsibility of the Contractor and shall be conducted at the Contractor's facility. Factory Acceptance Testing shall be conducted on all Common Tow Cables provided under this contract. Upon completion of Factory Acceptance Testing, the Contractor shall provide a report of test results. (A011)

3.4 System Hardware

3.4.1 Engineering Development Models (EDMs)

The Contractor shall fabricate, test and deliver EDMs in accordance with the approved Technical Data Package (TDP). EDMs shall be production-representative, such that they could be back-fitted to serve as an operational system.

3.4.2 Common Tow Cable Production

The Contractor shall manufacture and build tow cable systems consisting of a fully assembled and operational tow cable in accordance with the Government approved production level Technical Data Package developed under this contract. Each system shall be tested in accordance with the approved Factory Acceptance Test procedure.

3.4.3 Production Engineering

The Contractor shall provide production engineering and support to address issues or problems made evident because of production process goals, component obsolescence issues or testing.

3.5 Facilities

In accordance with the technical data package, the Contractor shall provide facilities to support the development, production, integration, and test of all system and subsystems that are part of Common Tow Cable. The Contractor shall include the capabilities to mechanically handle the tow cable and other system components during assembly and test.

3.6 Program Management

The Contractor shall maintain and implement a management program that clearly defines how the Common Tow Cable effort will be managed and controlled. The Contractor shall organize, coordinate, and control all internal project activities (including those that are assigned to subcontractors) to ensure the correct and timely delivery of all supplies and services specified in this contract. The Contractor shall structure the program management organization to allow for equal weighting between systems engineering and supportability functions. The Contractor shall report progress at program reviews and support such reviews with presentation and supporting materials as required.

3.6.1 Integrated Master Schedule

The Contractor shall prepare, maintain and provide an integrated master schedule. Integrated master schedules shall be required at lower levels when the Government deems particular items to be a problem or high-risk areas. The integrated master schedule shall not only capture the full scope of the Contractor's work, but shall include and integrate the overall project's scope, including work assigned to other organizations, as necessary to provide a comprehensive view of the project's status. (A012)

3.6.2 Contractor's Progress, Status and Management Report

The Contractor shall submit monthly Contractor's Progress, Status and Management Reports. (A013)

3.6.3 Kick-Off Meeting

The Contractor shall participate in a kick-off meeting held at a mutually agreed location no later than two weeks after contract award. The Contractor shall also provide the means for an audio or video teleconference link to these reviews for Government personnel unable to travel to the designated facility. At this meeting, the Contractor shall present its approach to completing the tasks described in this SOW. The Contractor shall provide an agenda and meeting minutes. (A008, A009)

3.6.4 Integrated Product Teams (IPT)

A Government led Integrated Product Team (IPT) concept shall be implemented in this program. The Contractor shall participate in the Program Management IPT with representation from the Program Office and Lead Engineer. Other functions shall participate as required based on program issues. The IPT shall meet monthly via teleconference and support quarterly Program Management Reviews at the Contractor's facility or as designated by the Government.

3.7 Data Rights

The Government shall have full data rights and ownership of all data produced, developed or updated as a result of this effort. Data shall include but is not limited to system drawings, manufacturing fixtures and special tooling drawings, models, reports, and procedures.

3.8 Government Furnished Property (GFP) and Information (GFI)

The Government will provide GFP and GFI as specified in Attachments 2 and 3 respectively.

GOVERNMENT FURNISHED INFORMATION (GFI)

ATTACHMENT # 2

PR# N00024-NR-11-99604

PROGRAM TITLE: AMCM COMMON TOW CABLE		CONTRACT NO.: N00024-11-C-63xx		DATE: 06/10/2011						
				CODE: PMS495						
LINE ITEM NUMBERS		MOD (3)	EQUIPMENT NOMENCLATURE EQUIPMENT DESIGNATOR DOCUMENT TITLE DOCUMENT NUMBER (4)	(5)					DOC DATE (6)	GFI DUE DATE (7)
SCHEDULE (1)	A/C (2)			VOL	PRT	REV	CHG	SUP		
			TOW CABLE ASSEMBLY, AN/AQS-20A, NSWC PCD DRAWING 07070- 38614			G				Contract Award
			TOW CABLE ASSEMBLY, OAMCM, NSWC PCD DRAWING 07070-40906			(-)				Contract Award
			ITT Tow Cable Shielding Specification SPEC-10-000001			(-)			2APR10	Contract Award
			MH-60S AMCM System Specification (draft)			F			14DEC07	Contract Award
			Wood Hole Oceanographic Institute Failure of an Atlas Elektronik OAMCM Tow Cable: Investigations, Tests, Suggested Improvements						27MAR09	Contract Award
			OAMCM Tow Cable Assembly Organizational Level Maintenance Manual, Technical Manual AE-317SA-MOB-000				A		18JUN10	Contract Award
			Tow Cable Fairing Alignment and Removal (TFAR) Tool Assembly Level Drawing							Contract Award
			Organic Airborne Mine Countermeasures Tow Cable Termination/Re-Termination Assembly and Qualification Process, NSWC PCD 07070-40818						MAY09	Contract Award
			OAMCM Tow Cable Assembly Carriage Knot Manufacturing Procedures, NSWC PCD Number 40907						AUG09	Contract Award
			Carriage, Stream, Tow and Recovery System (CSTRS) System/Subsystem Specification			B			4APR07	Contract Award

GOVERNMENT FURNISHED EQUIPMENT (GFE)

ATTACHMENT # 3

PR# N00024-NR-11-99604

PROGRAM TITLE: AMCM COMMON TOW CABLE			CONTRACT NO.: N00024-11-C-63xx			DATE: 6/10/2011
						CODE: PMS495
ITEM NO.	DESCRIPTION	QUANTITY	\$K VALUE (HARDWARE ONLY)	DUE DATE	MATERIAL CONTROL ACTIVITY	REMARKS
1	AMCM Tow Cable Assembly, P/N 40906, Non-Ready for Issue	1 ea	N/A	1 MAC	NSWC PCD	Initial Order

MAC = Months After Contract Award
Ea = Each

SHIPPING INSTRUCTION DATA

ATTACHMENT # 4

PR# N00024-11-NR-99604

CONTRACT NO.: N00024-11-C-63XX				MODIFICATION NO.:			
RDD (1)	ACRN (2)	CLIN/ SLIN (3)	QTY (4)	SHIP TO AND FOR (5)	ADDRESS CODE (6)	TAC (7)	MILSTRIP (8)
TBD		0001	1 lot	TBD			
TBD		0100	4	TBD			
TBD		0200	5-15	TBD			
TBD		0300	5-15	TBD			
TBD		0400	5-15	TBD			

NOTE FOR REQUIRED DELIVERY DATE (RDD):

MAC = MONTHS AFTER CONTRACT AWARD
 MAOE = MONTHS AFTER OPTION EXERCISE